PaperCut Xerox Secure Access EIP 2.0+Manual

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This manual covers the setup of Xerox Secure Access EIP 2.0+. For general PaperCut MF documentation, please see the PaperCut MF manual.

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1 Overview

This manual provides an overview of the installation, configuration and operation of PaperCut's embedded software MFD (Multi-Function Device) solutions. Today's MFDs are smarter – they have touch screens and offer the ability to run applications directly on the device. The goal of the PaperCut Software's embedded MFD solution is to leverage these smart devices and to provide walk-up copier users with the same set of rich application features provided in the print control area. These include:

- End user authentication including integration with single sign-on environments
- Monitoring and control of photocopying, scanning and faxing (quotas, charging, allocation and logging)
- Allocation of copying, scanning and faxing to accounts/departments/cost-centers/projects
- Release jobs from a hold/release queue (secure printing)
- Group based access control: Limit access to the device to members of selected user groups.

Highlights of the embedded solution include:

1.1 Consistency:

The embedded solutions are developed in-house by the PaperCut Software development team. This ensures that the copier interface is consistent with the workstation print interface, meaning users only have to learn one system.

1.2 Integration:

PaperCut is a single integrated solution where print, internet and copier control are all managed in the one system. Users have a single account and administrators have the same level of reporting and administration for all services. The embedded solution interacts with the PaperCut server using a Service Oriented Architecture (SOA) and web services based protocols.

1.3 Rate of development:

PaperCut is developed under a release-often policy where new features are made available to users as soon as they are complete. Unlike hardware based solutions, new versions can be delivered to users regularly as software updates.

1.4 Vendor Neutral:

PaperCut remains true to its vendor neutral stance. All embedded solutions are equal and support all server OS's including Windows, Linux and Mac.

1.5 Security:

A large percentage of PaperCut's user base operates in the Education environment where security is integral. All embedded solutions are developed with security in mind. Any security objectives that cannot be satisfied are fully disclosed.

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2 Installation

This section covers the installation of the PaperCut embedded application for compatible Xerox devices. The embedded application will allow the control, logging and monitoring of walk-up off-the-glass MFD usage and may also serve as a print release station for network prints (for information on just tracking network printing see the PaperCut user manual).

2.1 Xerox Device Compatibility

This document covers the PaperCut Xerox Secure Access EIP 2.0+ embedded solution. This solution supersedes the older Secure Access solution and is recommended for all devices that support the Extensible Interface Platform (EIP) version 2.0 or higher.

EIP includes the Xerox Secure Access feature, which allows the PaperCut server to authenticate users at the MFP device. It also includes a Job Limits feature, which allows PaperCut to more strictly enforce print quotas.

The PaperCut Xerox EIP 2.0+ solution includes:

- Full screen interface for Print Release – allowing individual print jobs to be viewed and released.
- Full screen interface for Account Selection – allowing accounts to be selected from a list, by search string, or by code.
- "Zero Stop" enforcement of copy and scan operations using the Job Limits feature of EIP2.
- Easier device setup and configuration

PaperCut implements Zero Stop for Copy and Scan jobs to prevent users from overrunning their available credit.

Zero Stop works using the Job Limits feature Xerox introduced in EIP2. Each job is pre-authorized with the PaperCut server which determines whether or not the job should proceed based on the cost and the associated account balance. When initiating each job the Xerox panel will show an "authorizing the job" message. If PaperCut does not authorize the job, an error message is displayed and the job will not start.

Zero Stop is not supported for Fax or USB printing. Some early firmware versions do not support Zero Stop for Scanning either. (See Section 5, Known Limitations and Security.)

A list of devices that support EIP can be found on the following web page (click on the "EIP-capable Hardware" tab section):

http://www.office.xerox.com/eip/enus.html

Examples of EIP 2.0+ capable devices are:

- ColorQube 8700/8900
- ColorQube 9301/9302/9303
- WorkCentre 5735/5740/5745/5755/5765/5775/5790*
- WorkCentre 7525/7530/7535/7545/7556
- WorkCentre 7830/7835/7840/7855
- WorkCentre 5890
- WorkCentre 7220/7225

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You can verify whether a particular MFP model supports Job Limits by the presence of a “Job Limits” configuration setting in the device web interface under Accounting / Accounting Method.

To track the device usage the Xerox Network Accounting module must also be enabled (Network Accounting is also known as JBA accounting). The “Network Accounting” module is often included with the device, but for some devices it is necessary to have this enabled by your Xerox supplier. Please contact your Xerox supplier for details.

NOTE: The FujiXerox devices available in the Asia-Pacific region do not support EIP. These devices can instead make use of the Network Accounting features to control access to the copier. See the PaperCut Xerox Network Accounting Embedded manual for information.

NOTE: The 57xx series mentioned above may require some extra configuration and have different workflow. One needs to enable “Display Custom Services Selection Button at the local user interface” under Custom Service Setup. Otherwise one may see errors complaining about being unable to set the default application. Also, when hitting the “Use Copier” button from the Print Release page or the Account Selection page, the user will be returned to the Custom Services page instead of the Home Services page. The user will need to hit the Home Services page physical button on the copier instead.*

2.1 Requirements

Ensure that the following points are checked off before getting started:

- PaperCut is installed and running on your network. Please see the ‘Introduction -> Quick Start Guide’ section of the PaperCut user manual for assistance.
- Your Xerox MFD supports the Extensible Interface Platform version 2.0 or higher.
- Your Xerox MFD has “Network Accounting” installed and enabled including off-box authentication support. (Network accounting is also known as JBA accounting.) You may need to contact Xerox to enable this functionality.
- You have available the network name and IP address of the system running PaperCut (e.g. the print server).
- The Xerox MFD is connected to the network.
- You have available the network address of the Xerox MFD. It is recommended that the MFD is configured with a static IP.

2.2 Migrating from EIP 1.0+ to EIP 2.0+ Xerox Devices

If you have an existing Xerox device that supports EIP 2.0+ and exists in PaperCut as an EIP 1.0+ device, then you may want to convert this device into an EIP 2.0+ device in PaperCut. Currently, there is no support for doing this directly in the PaperCut admin interface. You could take screenshots of the device’s details tabs of: Summary, Advanced Charging and Filters and Restrictions. Then delete the old EIP 1.0+ device and create the new EIP 2.0+ filling in the details based on your previous screenshots.

An alternative more advanced method using a command line tool is to change the device type in the PaperCut database. To do this you will need to do the following steps (where in this example the printer name to change is called “*device/XeroxPrinter*” as you would see for the Device Name in the Device List):

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1. Stop the PaperCut Application Server
2. Start a command prompt
3. On Mac/Linux, sudo su – papercut
4. cd [app-path]/server/bin/<platform>/
5. db-tools run-sql "update tbl_printer set device_type = 'EXT_XEROX_EIP2' where device_type = 'EXT_XEROX_CAA' and display_name = '*device\XeroxPrinter*'"
6. Start the PaperCut Application Server
7. Go to the Device details page and update the fields of:
    a. Device's administrator username
    b. Device's administrator password

    The username and password from EIP1 will have been set up for the SNMP v3 credentials which are not the same for EIP2. For example, typically for EIP1 the username will be set to "Xadmin" whereas in EIP2 it will be "admin". NOTE: If you take too long to set the correct credentials here then you could get locked out of the MFP as PaperCut can continue to try connecting with the wrong credentials. See the section FAQ & Troubleshooting on how to reset the lockout if this happens.
8. You might notice that in the Advanced Config tab that there are extra config parameters that are not mentioned in this manual which are not used in EIP2 (that were used in EIP1). They can safely be ignored.

2.3 Card Reader support

PaperCut supports using swipe card for authentication at the copier. This is often more convenient than entering username/password or ID/PIN numbers to log in.

Xerox devices can support 2 general classes of card readers:

- Network card readers (i.e. not physically connected to the MFP. The PaperCut server communicates with these over the network)
- USB card readers directly connected to the Xerox device (some recent Xerox devices with updated firmware now support a limited number of USB card readers – contact Xerox for details).

The Network Card Reader option will work with any Xerox device supporting "Xerox Secure Access".

2.3.1 Network Card Readers

Network card readers may be used on any Xerox device. PaperCut supports two cost effective network card readers:

- Elatec TWN3 with the TCP Converter
- RFIdeas Ethernet card readers

These readers are available directly from the card reader distributors and PaperCut Authorized Solution Centers in your region.

These network card readers are located on the MFP device and are connected to the network. When a user swipes their card at the reader the card number is sent to the PaperCut server for validation. If the card number is valid the user will be granted access to the MFP.

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2.3.2 USB Card Readers

Xerox updated their platform in late 2011 to support USB card readers through Xerox Secure Access. Devices supporting USB card readers include:

- ColorQube 8700/8900 (firmware 071.160.222.26601 and above)
- ColorQube 9301/9302/9303 (firmware 061.180.222.32100 and above)
- WorkCentre 5890
- WorkCentre 72xx
- WorkCentre 75xx (firmware 061.121.222.21500 and above)
- WorkCentre 78xx

The following card readers are supported by Xerox:

- Proximity card readers – RFIdeas, Elatec TWN3
- Magstripe card readers – Magtek, “IDTech MiniMag”, RF Ideas MS3-00M1AKU

2.4 Setup Procedure

2.4.1 Introduction

This procedure describes the process of setting up Xerox Secure Access EIP 2.0+ using the Xerox ColorQube 8700 as an example. The specific steps, screen layouts and button/label names can differ between device models. However the general process is the same for all supported devices.

2.4.2 Networking/Firewall Configuration

Ensure that your networking/firewall configuration allows:

- inbound connections from the Xerox devices to the PaperCut server on ports 9191 and 9192.
- outbound connections from the PaperCut server to the Xerox device on ports 80 and 443.

2.4.3 Enable the HTTPS/SSL protocol

Xerox Secure Access requires the use of HTTPS/SSL for communications. This must be enabled before completing any of the subsequent steps.

This involves generating an SSL certificate for the device:

1. Login to the device’s web admin.
2. Navigate to Properties->Security->Machine Digital Certificate Management

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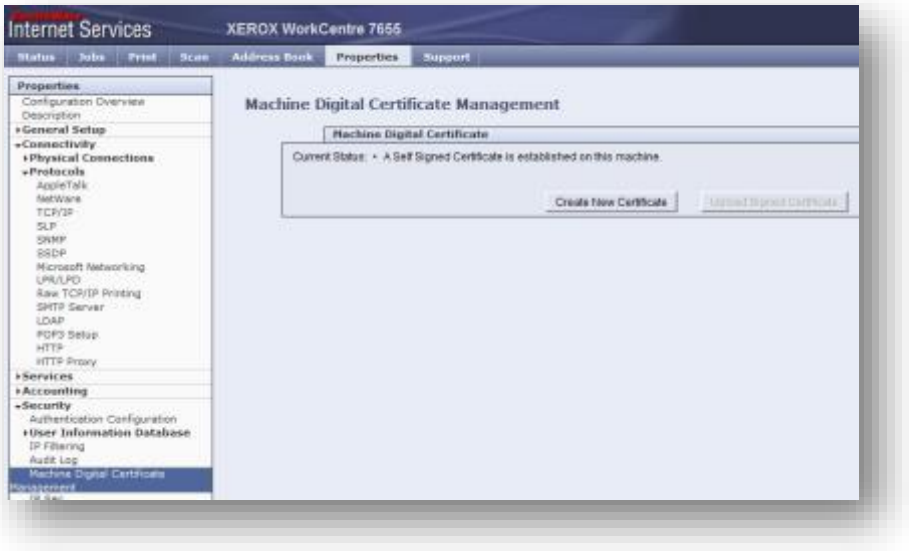
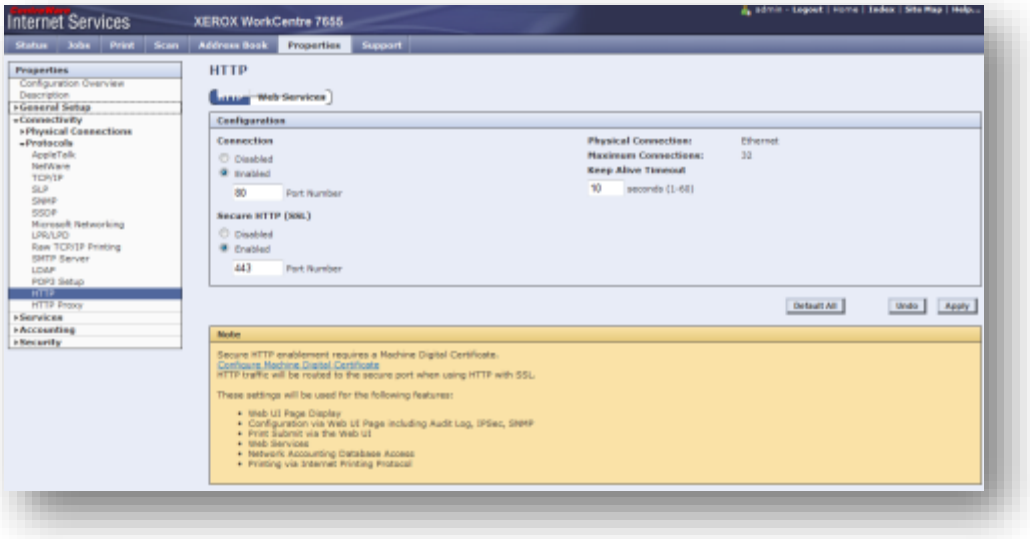
3. Press "Create New Self Signed Certificate".



4. Complete the required information
5. Press Apply.

Now enable the HTTP/SSL/TLS protocol:

1. Navigate to Properties->Connectivity->Protocols->HTTP
2. Enable the "Secure HTTP (SSL)" option



3. Press Apply

2.4.4 Check SNMP version 2 Configuration

PaperCut uses SNMP v2 to configure the Xerox MFP. You must ensure that SNMP v2 is enabled and that the SET community name matches the value of the advanced

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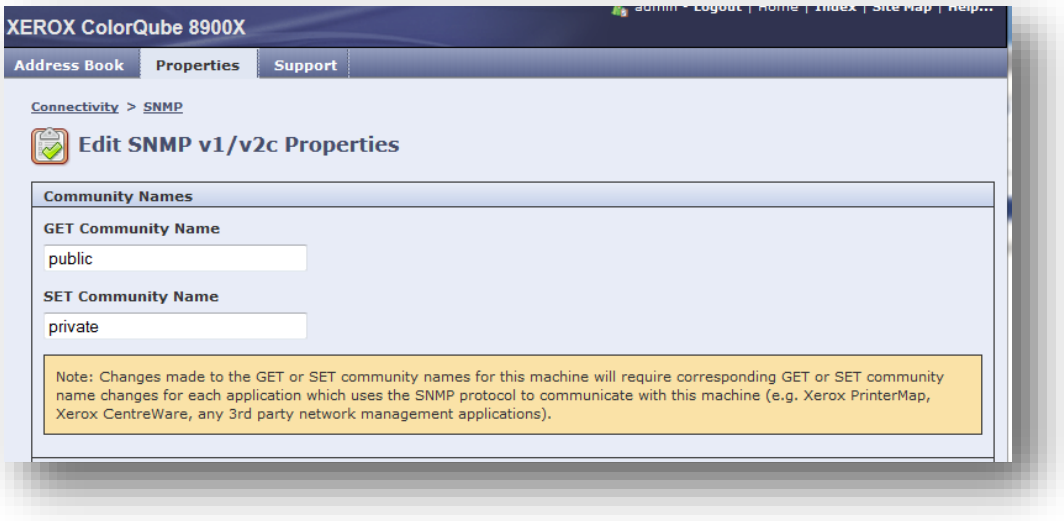
config key “ext-device.xerox.snmpv2.set-community-name”. (The default value for this key is: “private”.)

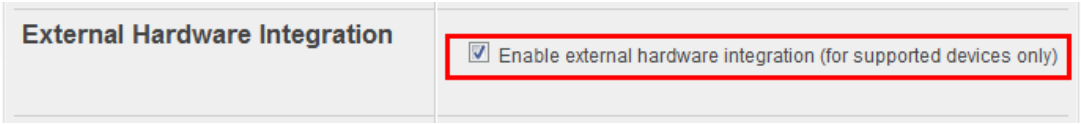
1. Login to the device’s web admin.
2. Navigate to Properties->Connectivity->SNMP
3. Edit the SNMP v1/v2c Properties


XEROX ColorQube 8900X
Address Book
Properties
Support
Connectivity > SNMP
Edit SNMP v1/v2c Properties
Community Names
GET Community Name
public
SET Community Name
private
Note: Changes made to the GET or SET community names for this machine will require corresponding GET or SET community name changes for each application which uses the SNMP protocol to communicate with this machine (e.g. Xerox PrinterMap, Xerox CentreWare, any 3rd party network management applications).

4. Verify the Community Names are correct and modify if required.

2.4.5 Create/setup the Xerox device in PaperCut

1. Log in to the PaperCut administration interface using a web browser (e.g. http://papercut-server:9191/admin).
2. Navigate to ‘Options -> Advanced’ and ensure the option ‘Enable external hardware integration’ is enabled.



3. Press ‘Apply’.
4. Navigate to the ‘Devices’ tab.
5. Click “Create Device” action from the left.

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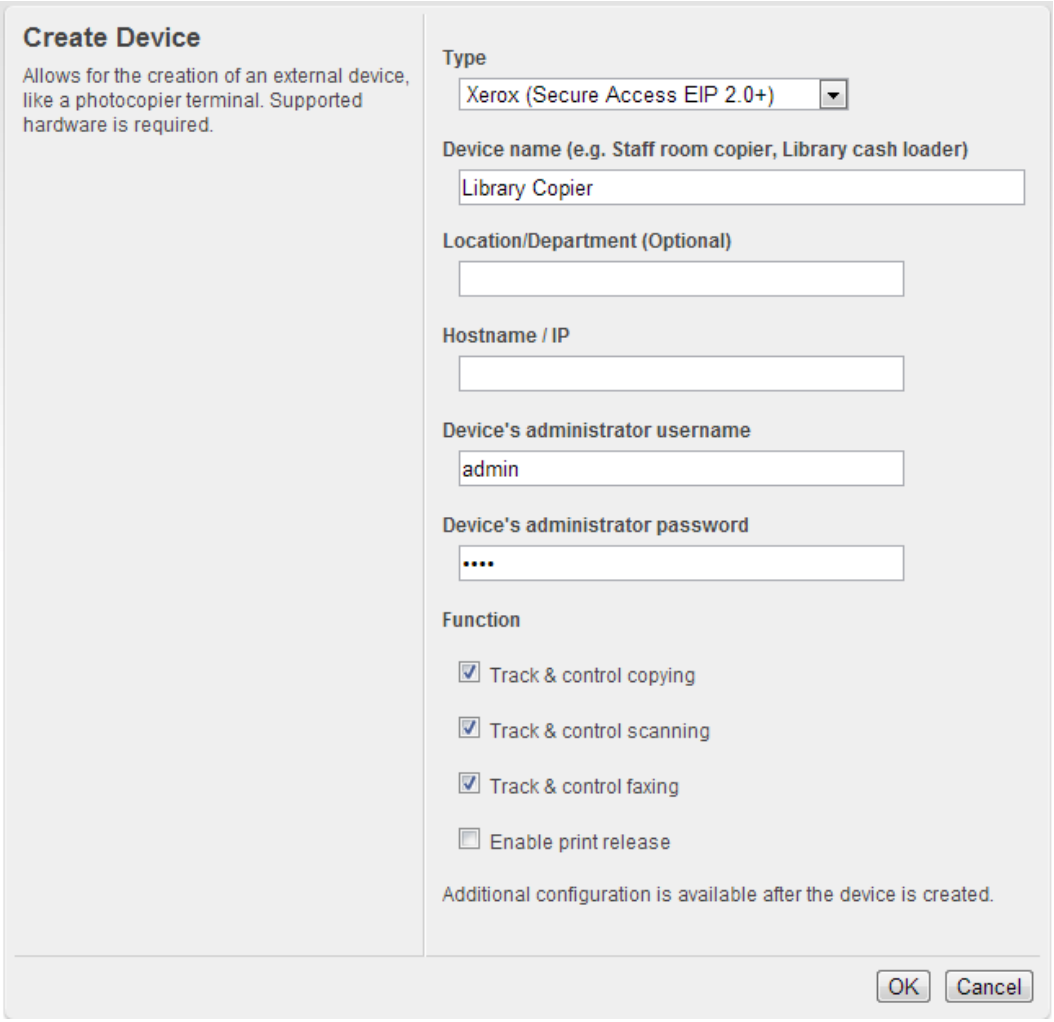
6. Select the "Xerox (Xerox Secure Access EIP 2.0+)" device type.



7. Enter your own choice of a descriptive name for the device under “Device name”.
8. Enter the Xerox device’s IP address under “Hostname/IP”.
9. Optionally enter your own choice of location/department information.
10. Enter the device administrator username and password (e.g. “admin” and “1111”).
11. Under “Function” tick the options you would like to enable. E.g. “Track & control copying”.
12. Click “OK”.

At this point PaperCut should try to connect to the device to configure various options over SNMP and SOAP/HTTPS. The page displayed after the device is created displays the device status. If there are problems communicating with the device then the status will show an error message. Press the "Refresh" link next to the status to see if the status is updated.

2.4.6 Enable and Verify Xerox Secure Access Authentication Settings

At this point the Xerox Secure Access can be enabled:

1. Login to the device’s web admin.
2. Navigate to Properties->Security->Authentication Configuration.

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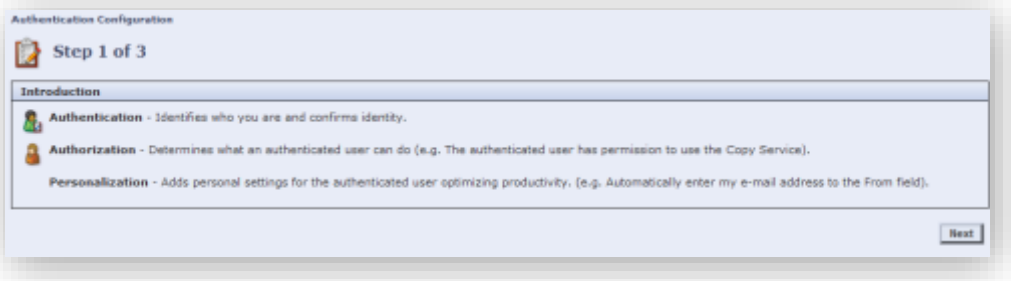
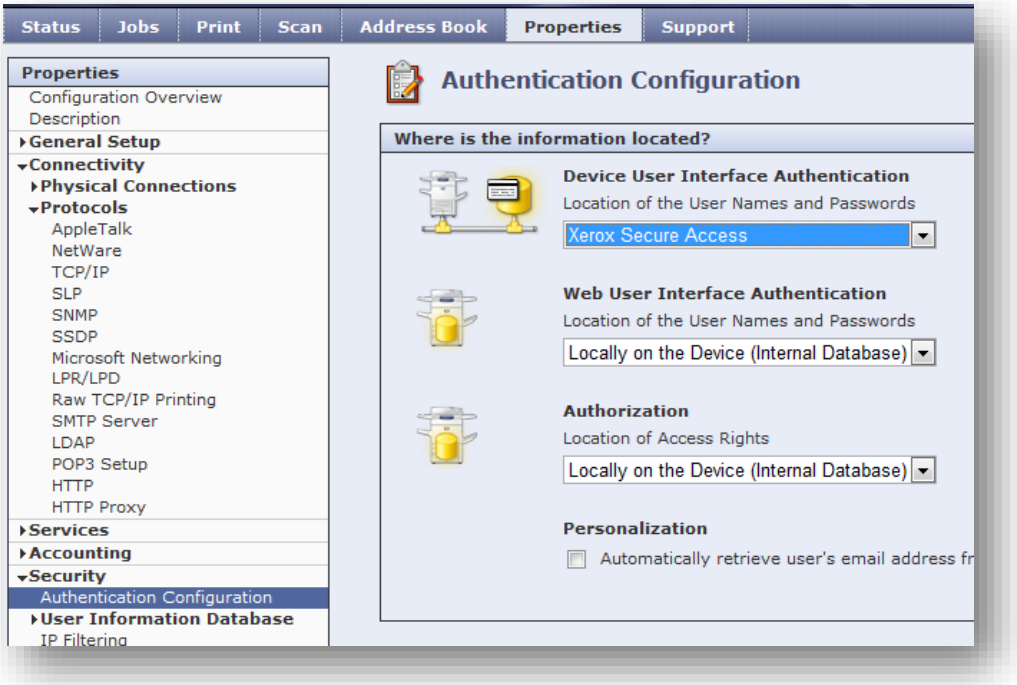
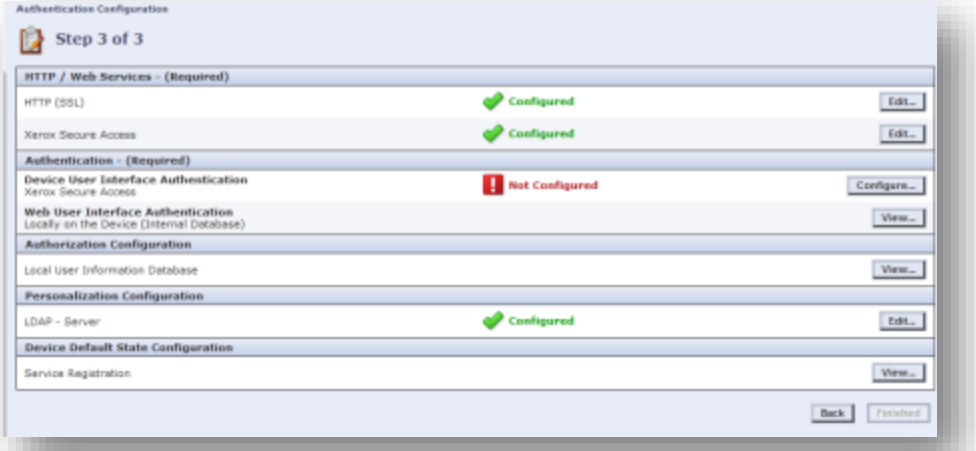
3. Select Next.


Authentication Configuration
Step 1 of 3
Introduction
Authentication - Identifies who you are and confirms identity.
Authorization - Determines what an authenticated user can do (e.g. The authenticated user has permission to use the Copy Service).
Personalization - Adds personal settings for the authenticated user optimizing productivity. (e.g. Automatically enter my e-mail address to the From field).
Next

4. Change Device User Interface Authentication to Xerox Secure Access and press Next



5. Click on Configure for Device User Interface Authentication



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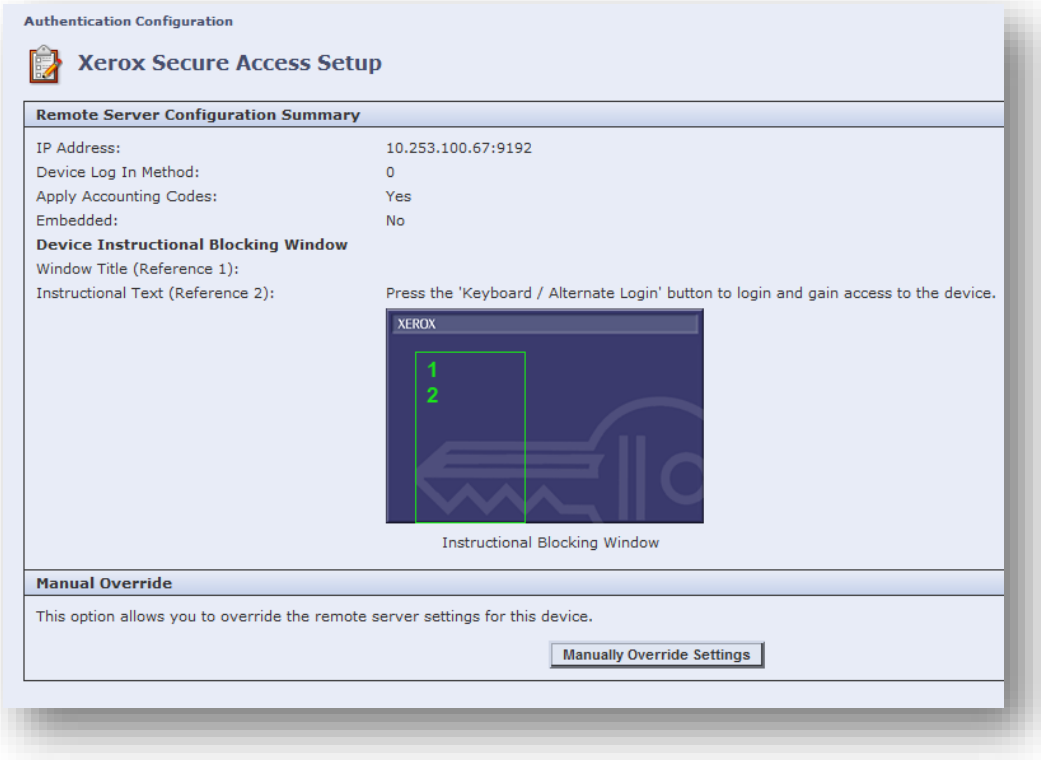
6. Click on Manually Override Settings


Authentication Configuration
Xerox Secure Access Setup
Remote Server Configuration Summary
IP Address: 10.253.100.67:9192
Device Log In Method: 0
Apply Accounting Codes: Yes
Embedded: No
Device Instructional Blocking Window
Window Title (Reference 1):
Instructional Text (Reference 2): Press the 'Keyboard / Alternate Login' button to login and gain access to the device.
XEROX
1
2
Instructional Blocking Window
Manual Override
This option allows you to override the remote server settings for this device.
Manually Override Settings

7. Verify that the correct PaperCut Server IP Address is listed
8. Verify that the Log In Methods is set to Xerox Secure Access + alternate on-screen authentication.

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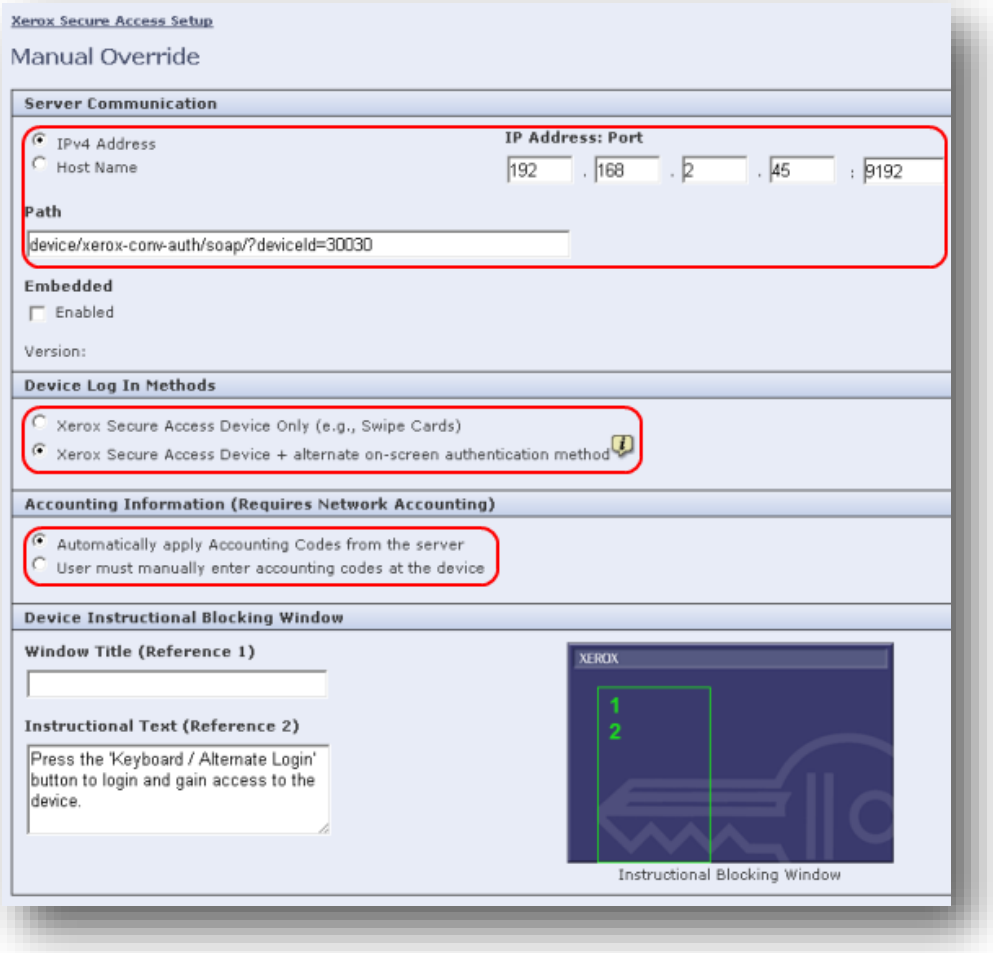
9. Verify that it will automatically apply Accounting Codes from the server.


Xerox Secure Access Setup
Manual Override
Server Communication
IPv4 Address
Host Name
IP Address: Port
192 . 168 . 2 . 45 : 9192
Path
device/xerox-conv-auth/soap/?deviceId=30030
Embedded
Enabled
Version:
Device Log In Methods
Xerox Secure Access Device Only (e.g., Swipe Cards)
Xerox Secure Access Device + alternate on-screen authentication method
Accounting Information (Requires Network Accounting)
Automatically apply Accounting Codes from the server
User must manually enter accounting codes at the device
Device Instructional Blocking Window
Window Title (Reference 1)
Instructional Text (Reference 2)
Press the 'Keyboard / Alternate Login' button to login and gain access to the device.
XEROX
1
2
Instructional Blocking Window

10. Change the Services Pathway setting to Locked. This locks access to the copier functions unless the user is logged in

NOTE: On newer devices the Pathway Options screen may look different

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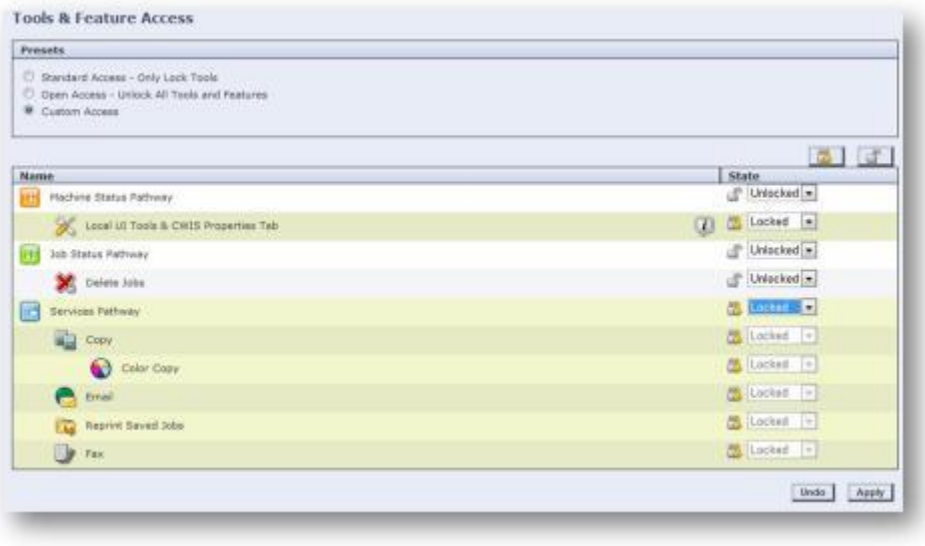
such as the screen below



On the Xerox ColorQube 8900, the Services Pathway can be found by navigating to: Properties -> User Permissions -> User Permission Roles -> Non-logged in Users -> Edit -> Services and Tools.

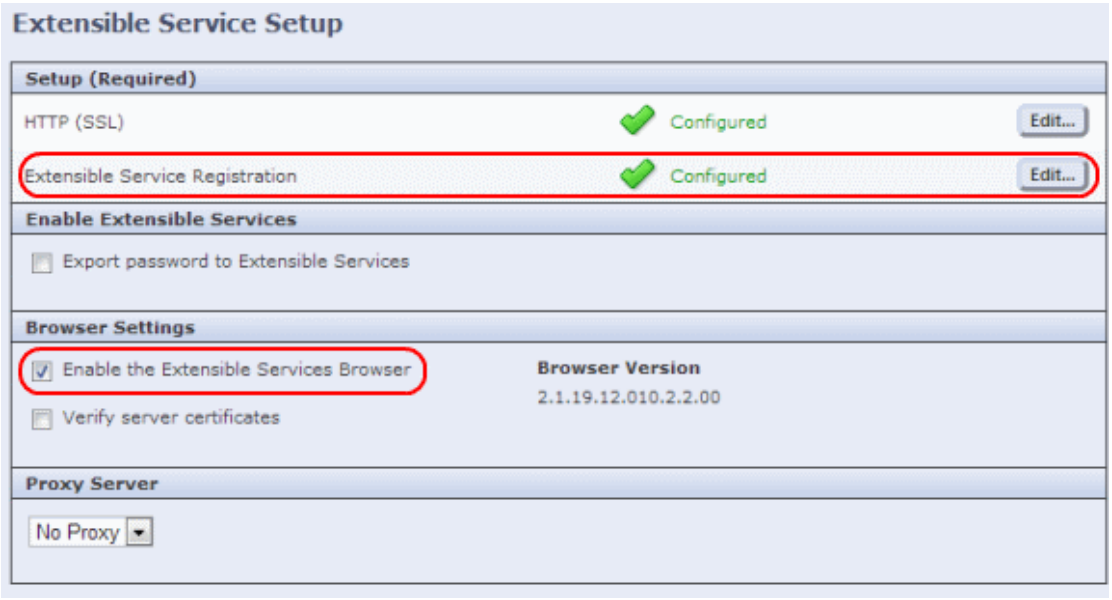
You may need to reboot the device for the settings to take effect.

Once the device is rebooted the device should display a screen to log in. Perform testing and verify you can log in and that copies are tracked by PaperCut.

2.4.7 Verify and Enable Extensible Interface Platform Settings

On some platforms such as the Xerox Workcentre 75xx series, the EIP settings may not be enabled by default. Please verify the settings and enable if necessary.

1. Log in to the device's web admin.
2. Navigate to Properties->General Setup->Extensible Service Setup



3. Verify that the Extensible Service Browser is enabled.
4. Click on the Extensible Service Registration Edit... button.

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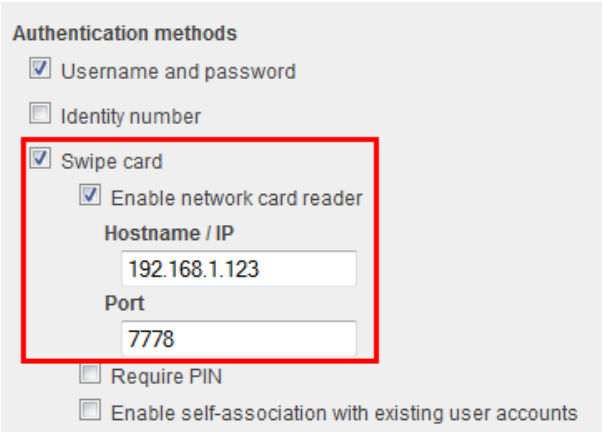
5. Verify that the Extensible Service Registration and User Interface Configuration items are enabled.

2.4.8 (Optional) Enable network card reader

This section describes how to configure a network card reader for authentication at the MFP. For more information on the supported card readers see Section 2.3 Card Reader support.

To enable the network card reader:

1. Log in to the PaperCut administration interface using a web browser (e.g. http://papercut-server:9191/admin).
2. On the “Devices” tab, select the MFP device.
3. Under the “Authentication Methods” option, enable the “Swipe Card” authentication option.
4. Select the “Enable network card reader” option.
5. Enter the network address and the port of the network card reader.



6. Press “OK” or “Apply” to save the changes.

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7. At this point PaperCut will establish the connection to the card reader. The status of the connection to the network card reader is displayed below the settings. If there is a problem connecting to the card reader any errors will be displayed here.

2.4.9 (Optional) Additional Network Security

The MFP communicates with the PaperCut server over the network (e.g. to authenticate users or release print jobs). To provide an additional level of security, PaperCut may be configured to only allow device connections from a restricted range of network addresses. This ensures that only approved devices are connected to the PaperCut server.

By default PaperCut will allow device connections from any network address. To restrict this to a subset of IP addresses or subnets:

1. Logon to the PaperCut administration web interface at http://<papercut-server>:9191/admin
2. Go to the Options→Advanced tab and find the “Security” section.
3. In the “Allowed device IP addresses” field enter a comma-separated list of device IP addresses or subnets (in the format <ip-address>/<subnet-mask>).
4. Press the “Apply” button.
5. Test the devices to ensure they can continue to contact the PaperCut server.

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3 Post-install testing

After completing installation and basic configuration it is recommended to perform some testing of the common usage scenarios. This important for two reasons:

1. To ensure that the embedded application is working as expected.
2. To familiarize yourself with the features and functionality of PaperCut and the embedded application.

This section outlines four test scenarios that are applicable for most organizations. Please complete all the test scenarios relevant for your site.

3.1 Test Preparation

To complete these tests it is recommended you use two test users so that each can be configured differently. These users are:

- 'testusersimple' – used to perform basic copier monitoring and control and to perform print release tests.
- 'testuseradvanced' – used to perform copier monitoring and control with the account selection enabled (i.e. to charge copying to accounts/departments/cost-centers/etc).

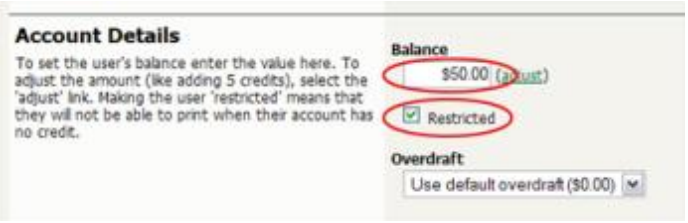
If you have existing users that can be used for these tests, then they can be used instead.

To setup these users in PaperCut:

1. Create the 'testusersimple' and 'testuseradvanced' users in your Active Directory or LDAP directory.
2. Log into the PaperCut's admin web interface
3. Go to the "Options->User/Group sync" page and press "Synchronize Now".
4. Once the sync is complete, the users will be added to PaperCut.

The next step is to configure the users. To configure 'testusersimple':

1. In PaperCut, select the "Users" tab
2. Select the 'testusersimple' user.
3. Set the user's balance to $50.00 and verify the account is set to "Restricted".


Account Details
To set the user's balance enter the value here. To adjust the amount (like adding 5 credits), select the 'adjust' link. Making the user 'restricted' means that they will not be able to print when their account has no credit.
Balance
$50.00 (adjust)
Restricted
Overdraft
Use default overdraft ($0.00)

4. Verify that this user is set to "Automatically charge to personal account" in the "Account selection" options.

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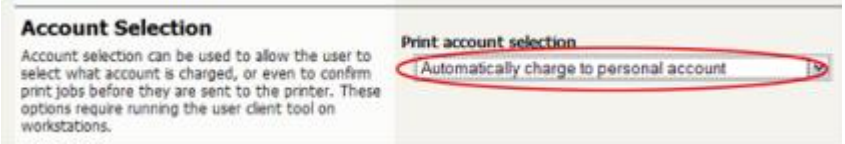
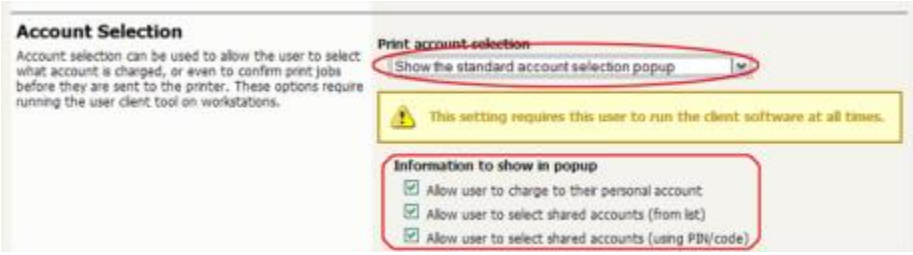

Account Selection
Account selection can be used to allow the user to select what account is charged, or even to confirm print jobs before they are sent to the printer. These options require running the user client tool on workstations.
Print account selection
Automatically charge to personal account

5. Press the “OK” button to save.

To configure ‘testuseradvanced’:

1. In PaperCut, select the “Users” tab
2. Select the ‘testuseradvanced’ user.
3. Change the “Account Selection” option to “Standard account selection popup” and enable all the account selection options.


Account Selection
Account selection can be used to allow the user to select what account is charged, or even to confirm print jobs before they are sent to the printer. These options require running the user client tool on workstations.
Print account selection
Show the standard account selection popup
This setting requires this user to run the client software at all times.
Information to show in popup
Allow user to charge to their personal account
Allow user to select shared accounts (from list)
Allow user to select shared accounts (using PIN/code)

4. Press the “OK” button to save.

3.2 Scenario 1: Standard copying

Standard copying involves monitoring/charging printing to a user’s personal account. This is most commonly used for student printing or basic staff monitoring. Users can also be configured for unrestricted printing, which is commonly used for staff/employee use.

At the photocopier:

1. The photocopier should display a screen to prompt the user to login. Follow the prompts to login.
2. When prompted, enter username (‘testusersimple’) and password in the login fields.
3. At this point the copier will be enabled for usage.
4. Follow the onscreen instructions and perform some test copying, i.e. press the “Copy” key on the device and perform a copy as normal.
5. Once completed copying press the “Logout” button on the device’s keypad.

Back in the PaperCut application verify that the copier activity was recorded and the user’s account deducted.

1. Log into PaperCut.
2. Select the device from the “Devices” tab.
3. Select the “Job Log” tab. This will list all recent copying activity on the copier. The copying just performed as the test user should be listed. Verify the details of the copy job that was just performed.

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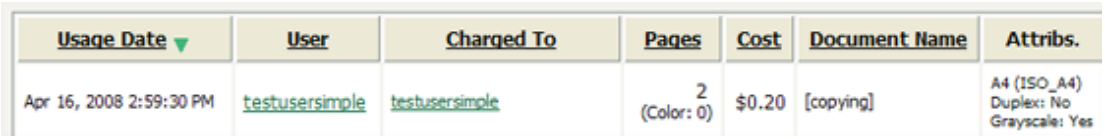

Usage Date	User	Charged To	Pages	Cost	Document Name	Attribs.
Apr 16, 2008 2:59:30 PM	testusersimple	testusersimple	2 (Color: 0)	$0.20	[copying]	A4 (ISO_A4) Duplex: No Grayscale: Yes

4. Click on the user's name in the user column to view the user's account details
5. Select the "Job Log" tab to display all print/copy activity for the user.
6. Select the "Transaction History" tab and verify that the cost of the photocopying was deducted from the user's account.

Transaction date	Transacted by	Amount	Balance after
Apr 16, 2008 3:05:40 PM	[system]	-$0.20	$49.80
Apr 16, 2008 3:04:15 PM	admin	$40.20	$50.00

3.3 Scenario 2: Copying with account selection

Firstly a test account should be created:

1. Log into PaperCut, select the "Accounts" tab.
2. Select the "Create a new account…" action link on the left.
3. Enter an account name "Test Account 1".
4. Enter PIN/Code "2233".
5. Select the "Security" tab and allow all users to access that account by adding the "[All Users]" group.
6. Press "OK".

At the photocopier:

1. The photocopier should be displaying a screen to prompt the user to login. Follow the prompts to login.
2. When prompted, enter the username, 'testuseradvanced', and the password in the login fields.
3. You will now be presented with the Account Selection App:

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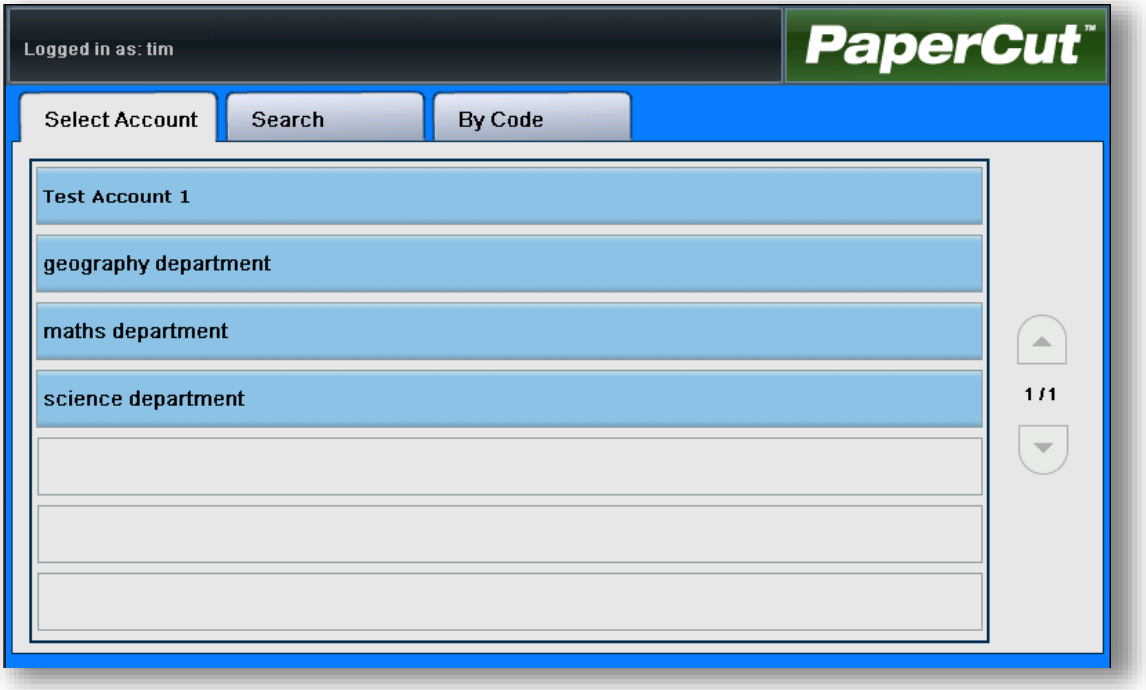

You may select your account from a list, by search or by an account code/PIN. From the list, select the “Test Account 1” created earlier.

4. At this point the copier will be enabled for usage. Follow the onscreen instructions and perform some test copying. I.e. press the “Copy” key on the device and perform a copy as normal.
5. Once completed copying press “Logout” button.

Note: The account selection workflow can vary according to the user options selected. For example a user configured to see the Advanced Account Selection popup may see an additional dialog asking for command and invoice information. At the device level, you may also configure whether you wish to see the Account Summary screen or not.

Back in the PaperCut application verify that the copier activity was recorded and the user’s account deducted.

1. Log into PaperCut
2. Select the device from the “Devices” tab
3. Select the “Job Log” tab. This will list all recent copying activity on the copier. The copying just performed as the test user should be listed.
4. Verify the details of the job (i.e. that the job was charged to the selected account).
5. In the log details, click on the “Charged To” account name to view the account’s details.
6. Selecting the “Job Log” tab will display all print/copy activity for the account, and will show the test photocopying that was performed.

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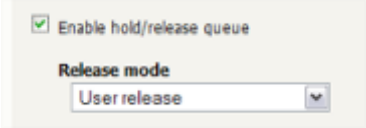
3.4 Scenario 3: Print release

The embedded application may also be used for print release. For a full description of PaperCut hold/release queues and release stations, please read the PaperCut manual.

Skip this scenario if hold/release queues will not be used at your site.

To perform print release testing, a hold/release queue must be enabled:

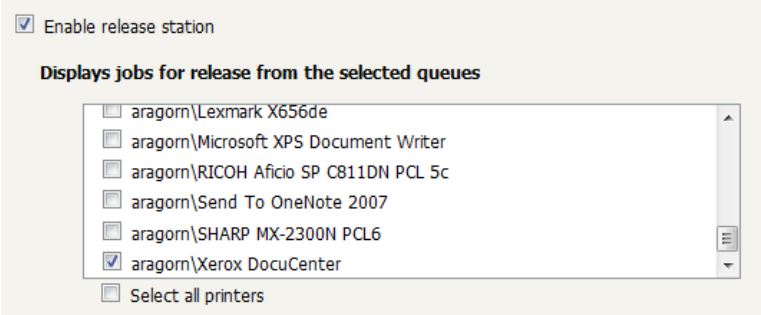
- In PaperCut, select the “Printers” tab.
- Select the print queue (i.e. not the ‘device’) for the Xerox MFD that will be used for testing.
- Enable the “Hold/release queue” option.



- Press OK/Apply to save the changes. All printing to this queue will now be held until released by a user.

The photocopier device must also be enabled as a “Print Release Station”:

1. In PaperCut, select the “Devices” tab.
2. Select the Xerox MFD device.
3. Under “Device Function” tick “Enable release station”.
4. Select the print queue that was enabled for hold/release above. The Xerox device will allow jobs on the selected queues to be released.



5. Press “OK” to save.
6. Login to a computer workstation as ‘testusersimple’.
7. Print a few jobs to the print queue that was configured above. The jobs will be held in the hold/release queue.
8. Confirm that the jobs are held, by checking that the jobs are listed in the “Printers -> Jobs Pending Release” page of the PaperCut administration interface.
9. Confirm that the username is ‘testusersimple’.

At the device:

1. Log into the device as “testusersimple” as described above.

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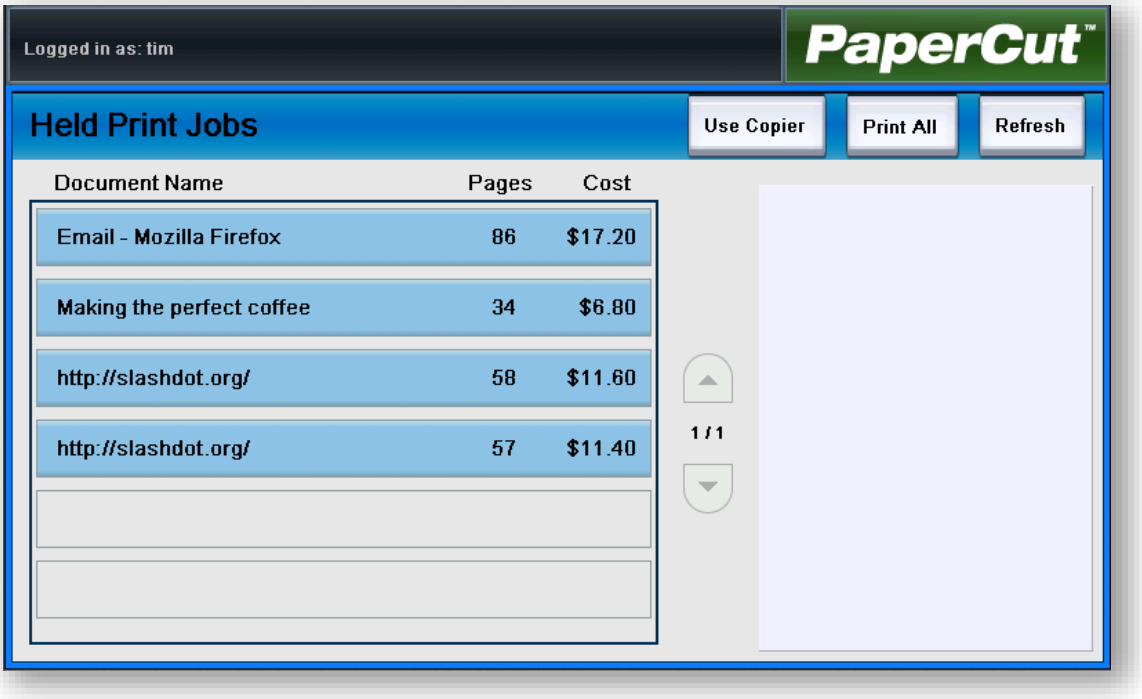
2. Upon successful login you will be presented with the Print Release dialog:



3. Select “Print All” to release all jobs. The jobs will begin to print to the destination printer. (The “Print All” button will not appear if there are no jobs to print)
4. Once completed press the “Logout” button on the device keypad.

3.5 Scenario 4: Scanning and faxing

Xerox devices can also scan documents and send them by email. If a phone line is attached, they can send faxes. You can enable tracking scanning and faxing. Users can be prevented from scanning or faxing when they are out of credit.

To enable tracking of scans and faxes:

1. In PaperCut, select the “Devices” tab.
2. Select the MFD device.
3. Under “Device function” tick “Track & control scanning” and tick “Track & control faxes”.
4. Select the charging type “advanced” in both cases and set some numbers for page costs and thresholds. The cost after the threshold should be lower than the standard cost as it represents a volume discount. As an example, the screen shot below shows that the first page of a fax is charged at $0.20 and any subsequent page at $0.10.

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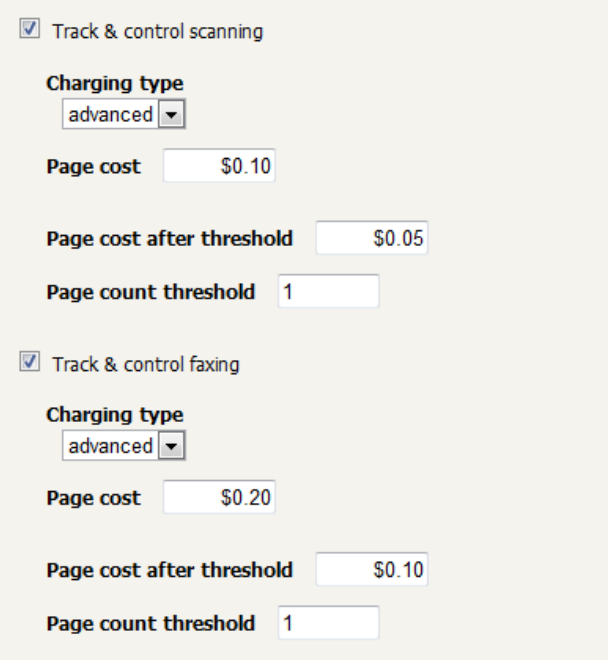

At the photocopier, log in and scan a few documents and send a few faxes. At the end, make sure to press the “Logout” button on the device’s keypad.

In the PaperCut administration interface verify that the scan and fax activities were recorded and the user’s account was deducted. This can be done as follows:

1. Log in to the PaperCut administration interface.
2. Select the device from the “Devices” tab.
3. Select the “Job Log” tab. This will list all recent activity on the copier, including copying, scanning and faxing. The jobs just performed as the test user should be listed. Verify the details of the jobs that were just performed.

Usage Date ▼	User	Charged To	Pages	Cost	Document Name	Attrib
Dec 9, 2009 11:45:23 AM	testusersimple	testusersimple	2	$0.30	[fax]	
Dec 9, 2009 11:44:35 AM	testusersimple	testusersimple	5	$0.30	[scanning]	

4. Click on the user’s name in the user column to view the user’s account details.
5. Select the “Job log” tab to display all activity for the user.
6. Select the “Transaction History” tab and verify that the cost of the scans and faxes was deducted from the user’s account.

Transaction date ▼	Transacted by	Amount	Balance after
Dec 9, 2009 11:45:23 AM	[system]	-$0.30	$4.40
Dec 9, 2009 11:44:35 AM	[system]	-$0.30	$4.70

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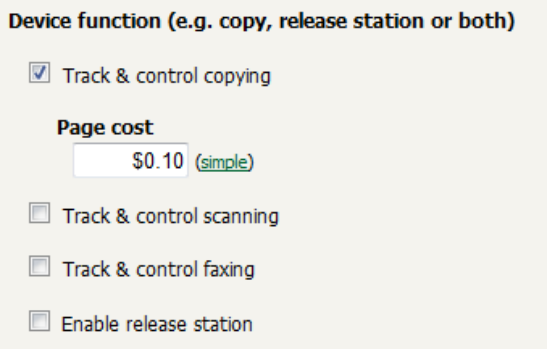
4 Configuration

After completing the Installation section and registering the device with PaperCut, it will have been configured with reasonable default settings that are suitable for most environments. This section covers how to change those default settings. All the following settings are available via the device's 'Summary' tab in the PaperCut administration interface.

4.1 Device Function

The device function setting defines which functions will be available on the device and how it will be used. Not all function settings are supported on all devices.



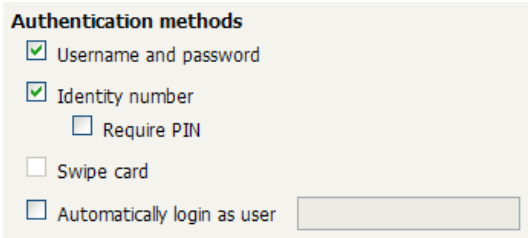
Each device function is discussed in the following table.

Device Function	Description
Track & control copying	The device will track walk-up off-the-glass copying.
Track & control scanning	The device will track scanning such as scan-to-email or scan-to-file.
Track & control faxing	The device will track the sending of faxes.
Enable release station	The device will act as a print release station.

4.2 Authentication Methods

PaperCut supports a number of different ways to authenticate users who walk-up to the devices to perform copying. The default authentication method is username and password authentication.

The available authentication methods can be modified in the 'External Device Settings -> Authentication methods' section.



Authentication methods available for a device

Not all authentication methods are supported on all devices. A grayed-out option indicates that the option is not supported on this device.

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Each authentication method is discussed in the following table.

Authentication Method	Description
Username and password	The user may use their domain/network username and password to log into the device.
Identity number	The user may log in with their identity number. Identity numbers are convenient when usernames are long or cumbersome to enter. For example, rather than entering a username like 'john.smith.001', it may be more convenient to enter an employee ID of '1234'. See the PaperCut user manual for information about user identity numbers, including importing identity numbers from an external source.
Identity number -> Require PIN	When a user logs in with their identity number, they must also provide their associated PIN. This provides additional security for identity number logins.
Automatically login as user	Specifies that this device should always automatically log in as the given user. This option overrides all other authentication methods

Description of authentication methods

4.3 Configuring Swipe Card Readers

Swipe cards contain numbers which are used to identify users according to the card number configured in the User Details screen under "Card/Identity" number. Some readers report information in addition to the number encoded on the card, such as checksums. PaperCut can treat these cases in two ways:

- A typical case is the checksum being reported after the card number, separated by an equals sign, such as in 5235092385=8. PaperCut can handle this case by default; it will extract the number before the equal sign as the card number: 5235092385.
- For some cases, a "regular expression" *may* be required that will filter the card number from the complete string of characters reported by the card reader. Documentation on regular expressions can be found on the Internet, e.g. at www.regular-expressions.info.
    - The regular expression must be fashioned so that the card number is returned as the first match group.
    - Usually one regular expression will be used for all the devices managed by PaperCut; this must be entered in the "Config editor (advanced)" which you will find on the Options tab under Actions. The key is called "ext-device.card-no-regex".
    - The global setting however can be overridden on a per-device basis: The key "ext-device.card-no-regex" can also be found on the "Advanced Config" tab in the device details screen. This setting will override the global setting unless the keyword "GLOBAL" is specified.
    - PaperCut developers will gladly assist in producing a regular expression when supplied with a few sample outputs from your card reader. Please contact PaperCut support.

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- If you would like to write your own regular expressions, here are some examples:
  - Use the first 10 characters (any character): (.{10})
  - Use the first 19 digits: (\d{19})
  - Extract the digits from between the two "=" characters in "123453=292929=1221": \d*=(\d*)=\d*

4.4 Single Sign On (SSO)

No further configuration is required as PaperCut passes all the known information about the logged in user to the MFP at the time of login such as the Full Name, email address, and more. This information can then be used by other components on the MFP (or possibly other 3rd party applications).

One example is that when you use the scanner functionality, the MFP can use your email address, provided by PaperCut, to simplify scan-to-me style work-flows.

4.5 Customizing the Header Logo

The embedded application displays a logo in the top right corner. This logo can be replaced with your organization's own logo image.

The image must be saved as a PNG file with the filename "logo.png" and be 231 pixels wide and 32 pixels high.

Save the image on the PaperCut application server in the location:

[PaperCut Install Location]\`server\custom\web\device\xerox\eip2\`

You will need to create these folders if not present.

The embedded application will fetch the logo image from this location if it is present. After copying your logo into position, verify it correctly appears in the embedded application.

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5 Known Limitations and Security

The Xerox environment has a number of limitations that have impacted on functionality and security.

5.1 No Tracking or Zero Stop for USB Printing

As Xerox does not provide a way for PaperCut to distinguish between print jobs initiated at the copier and print jobs initiated at the client's workstation, we are currently unable to track USB printing.

This same limitation also means that Zero Stop for USB printing is not supported.

5.2 No Zero Stop for Faxing

Xerox devices currently do not stop fax jobs when users run out of credit. Instead, users can complete the fax job and possibly incur an overdraft in their accounts (if Fax Tracking is supported for that model).

5.3 Fax Tracking

Many Xerox MFPs do not log sent faxes in the Network Accounting / JBA logs. On these devices PaperCut cannot track any outbound faxes.

Please check with Xerox whether your device model supports fax tracking via Network Accounting.

For example, the following Xerox devices do not support tracking faxes:

- ColorQube 8700
- ColorQube 8900
- WorkCentre 5735/5740/5745/5755
- WorkCentre 5765/5775/5790
- WorkCentre 7525/7530/7535/7545/7556

5.4 User Interface

The interface displayed during the user login process has some limitations. The Xerox Secure Access features allow us to display any number of screens with either one of the following features:

- A text input field (which can be optionally masked for password input)
- A prompt with "Yes" and "No" buttons.

These limitations restrict the richness and flexibility that we can provide in the login process.

This is a limitation of the Xerox Secure Access system.

5.5 Bypassing the System

It is important that the administrators take care to prevent users from bypassing the system and directly accessing the copier.

To ensure the system is secure, administrators should take the following precautions:

- The copier's built in admin password should be changed from the default and always kept secure.

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5.6 Card Reader support for authentication

PaperCut supports network card readers using common card formats. For more information, contact the PaperCut Authorized Solution Center in your region.

The Xerox Secure Access environment began supporting USB card readers in late 2011. Support for USB card readers is only available on some MFP devices with the latest firmware and Xerox is gradually rolling out support for USB card readers across their device range. Contact Xerox for information on what devices and firmware are required for USB card reader support.

5.7 Job Assembly not supported by default

Xerox's Job Assembly feature which allows one to program a job with different attributes such as different page sizes, is not supported if Job Limits is used. Job Limits is currently used by PaperCut for Zero Stop. If you require Job Assembly and do not require Zero Stop, then you need PaperCut to disable the Job Limits' preauthorizations on the Xerox MFP. Once this is done, the Job Assembly buttons will be enabled and the functionality should work.

5.7.1 Turning Off Job Limits' Preauthorization

You need to do the following to disable the job limits from pre-authorizing jobs.

1. Log into PaperCut.
2. Navigate to the Xerox device's details page.
3. Navigate to the Advanced Config and set *ext-device.xerox.enable-preauth* to "N" and click on the Update button. This configuration change will modify the Xerox device in a few seconds.

5.7.1.1 Check Preauthorization is disabled on Xerox MFP (optional)

Optionally, if you want to make sure that the previous configuration setting has happened, then you can check on the Xerox' admin pages.

1. Login to the device's web admin (CWIS).
2. Navigate to Properties->Login/Permissions/Accounting->Accounting Method
3. Click on the Edit button for Accounting Workflow

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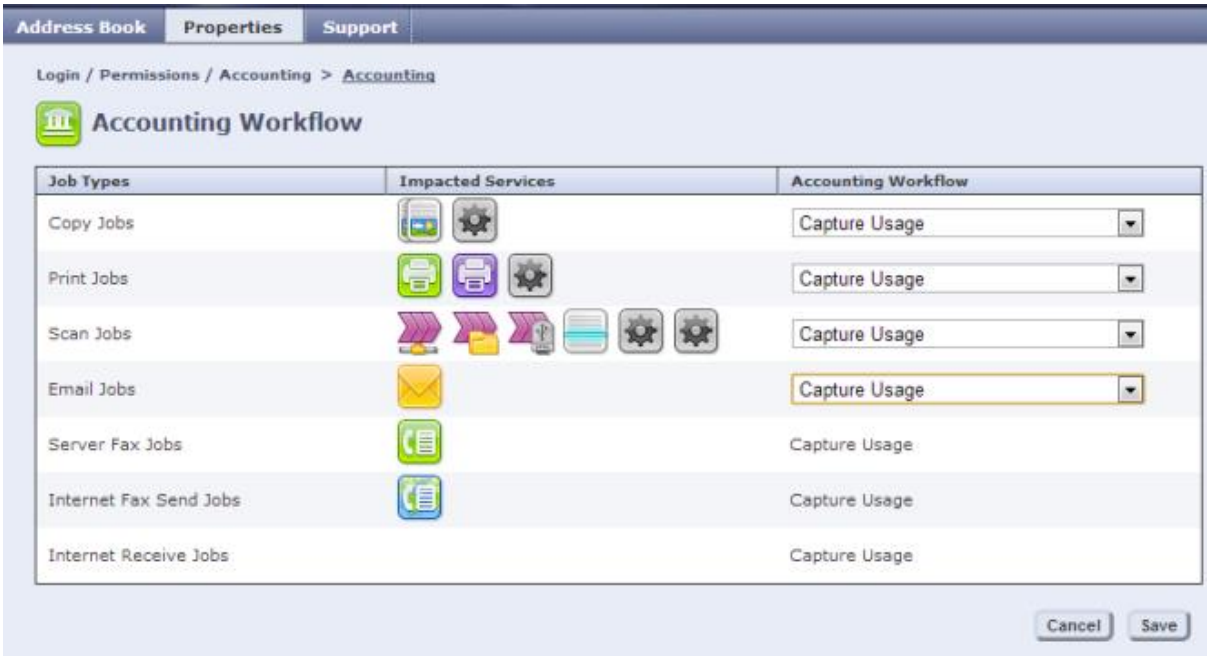
4. Verify that for all the job types that the Accounting Workflow is just set to “Capture Usage”.



5.8 Unable to bypass authentication for custom Apps/Services

It is possible to decide whether a non-logged-in user is allowed to access a service or not. This can be set in the CWIS via Properties->Login/Permissions/Accounting->User Permissions->Services & Tools.

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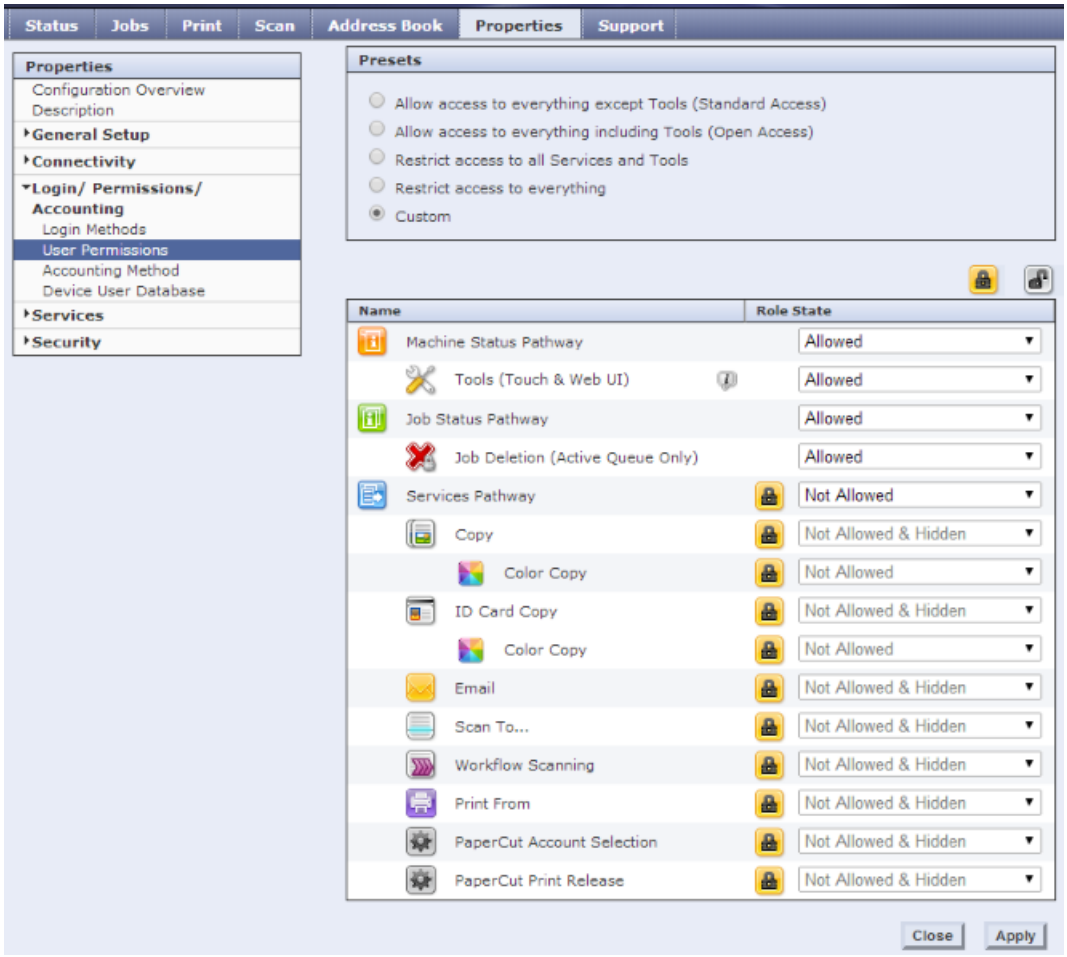

Potentially, it can allow one to access a service without requiring authentication which may be useful in some circumstances. An example, might be allowing Xerox's Mobile Print App to be selected without requiring initial authentication. However, if one "allows" an additional App to be used without logging in, then it will pop up an Accounting dialog which requests a User ID and an Account which makes no sense to the user and we do not want. This is triggered by having the User Accounting Prompts enabled for services.

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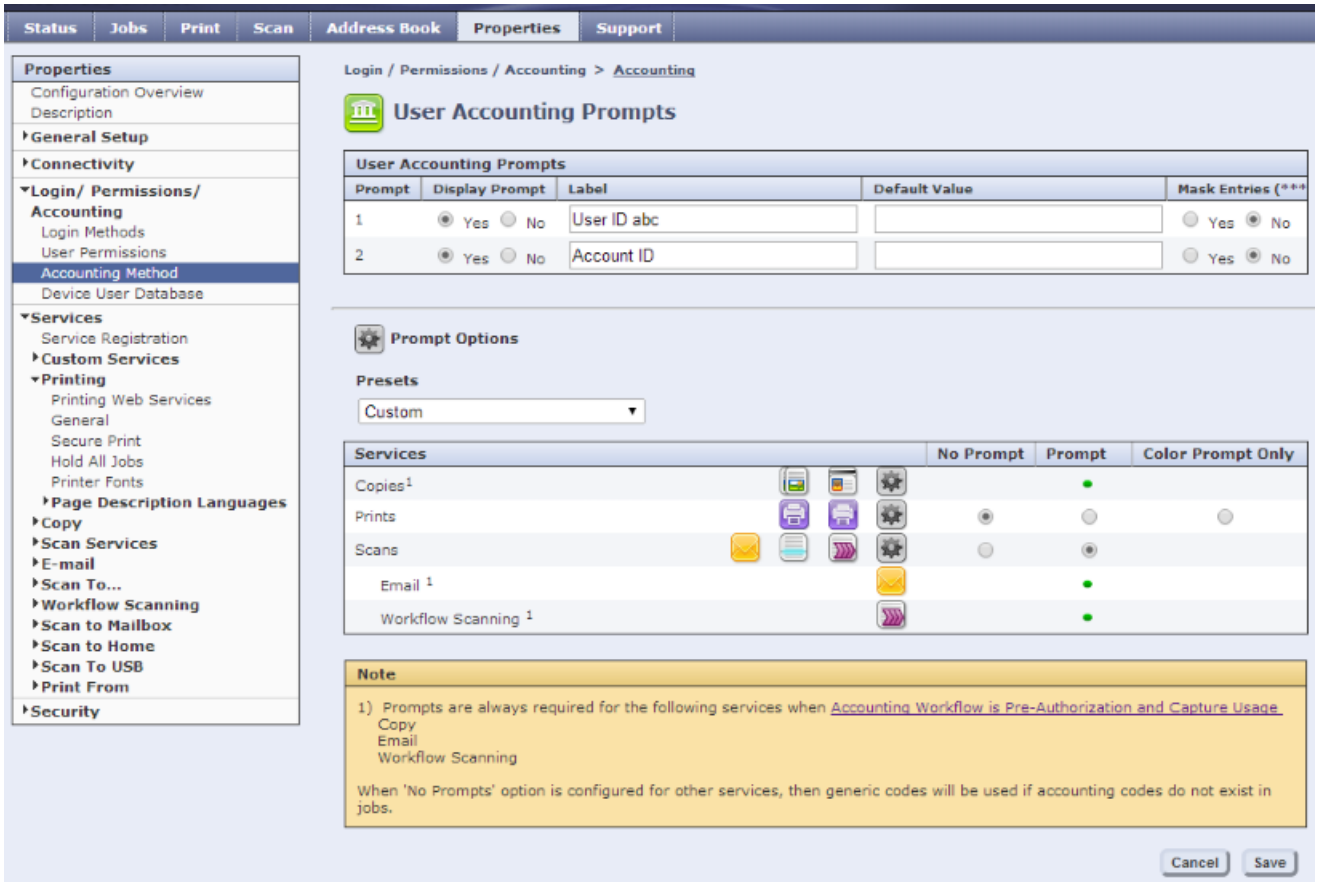

The User Accounting Prompts are needed for Xerox's Job Limits feature which allows PaperCut to do Zero Stop and tracking of Shared Accounts. The prompts are also used for tracking usernames in the job log. Therefore, the User Accounting Prompts are essential to PaperCut's solution for Xerox which means we are unable to support the custom Apps without them being set to require authentication.

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6 Advanced Configuration

6.1 Config Editor

The common configuration options for a device in PaperCut are available on the device's 'Summary' tab, and are discussed in more detail in the Configuration section. This section covers the more advanced or less common configuration options which are available via the 'Advanced Config' tab.

Config name	Description
ext-device.card-self-association.use-secondary-card-number	Select whether user self-association should occupy the primary or secondary card number. It overrides the global setting unless the keyword "GLOBAL" is specified. This is useful when there is a mix of different non-configurable card readers that read different numbers from an ID card. Set to "Y" to use the secondary card number, "N" to use the primary card number. Default: "GLOBAL" to defer to the global configuration option.
ext-device.xerox.login-instruction	Defines the text to display on the initial login screen displayed by the Xerox device. If set to "DEFAULT" PaperCut will set this message based on the authentication settings of the device. IMPORTANT: The Xerox device has very limited support for non-ASCII characters. If you have problems please only use ASCII characters.
ext-device.xerox.job-download-after-login-period-secs	The number of seconds between PaperCut downloading/polling the device job logs after the user is logged in. The default for this is every 10 seconds. The minimum this can be set to is 5 seconds. Default: DEFAULT (which allows PaperCut to choose the most appropriate time – usually 10 seconds).
ext-device.xerox.auth-user-prefix	When user's login to the Xerox their credentials like username (and password if provided) are passed to the Xerox device by PaperCut. This allows the device to use these credentials for other authentication. E.g. To authenticate the use when using the "Scan to Home" features. In some environments, the username must be prefixed with the windows domain for this to work properly. This setting allows the domain to be prefixed to the username so that the user does not need to enter it manually. For example, if this setting is set to: "DOMAIN\" and the user named "john" logs in, PaperCut will pass the username "DOMAIN\john" to the Xerox.
ext-device.xerox.card.magstripe-track-no	When a USB Magstripe card reader is used, the card data can be found on one of 3 tracks. Typically the track of interest is track number 2. This configuration parameter specifies a comma separated list of track numbers to look at in order to retrieve the card data. For example if the list was: ***2, 3*** then it would look to see if there was data for track ***2*** and if there wasn't then it would look to see if there was data for track ***3***. If it can't find any valid track data,

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	then it will show an error message on the Xerox Panel and a more detailed message in the logs. **Note:** Prior to PaperCut 13.4, this list can only contain one value. Default: 2 (by default only look at the data associated with track 2)
ext-device.xerox.locale-override	Specify a two letter language code to force the language setting for use on the device. The locale is determined by the following priority sequence: 1. ext-device.xerox.local-override setting 2. The language set on the Xerox device 3. The locale set on the PaperCut server (system.default-locale config key) 4. The default locale configured on the operating system running the PaperCut server
ext-device.xerox.initial-account-tab	Specify the name of the default tab to show on the Account Selection dialog. Specify “list”, “search” or “code”. Default: “list”
ext-device.xerox.show-release-on-login	Specify whether to include the Print Release dialog in the login workflow, if the device is configured as a release station. Values: Y, N. Default: Y If set to N, the user must press the “Print Release” button on the Services Home panel to access the release application to release jobs.
ext-device.xerox.release-show-cost	Specify whether to show the Job cost for each print job. Values: Y, N. Default: Y.
ext-device.xerox.select-account	Specify whether to support Account Selection and therefore, allow the registration of the Account Selection App on the MFP and display of the Account Selection Page. Values: Y, N. Default: Y If set to N, Account Selection is not supported, the Account Selection App will not be registered on the MFP and therefore no Account Selection icon will be shown on the panel.
ext-device.xerox.select-account-on-login	Specify whether to include the Account Selection dialogs in the login workflow. Values: Y, N. Default: Y. If set to N, the user must press the “Account Select” button on the Services Home panel to access the account select application to select an account.
ext-device.xerox.require-account-selection	Specify whether to always stop the user performing a copier job until they select an account in the Account Selection dialog. Values: Y, N. Default: N. If set to N, then it will only force account selection if the user is not allowed to charge to their personal account and they haven’t chosen an account yet. If set to Y, then the user must choose an account otherwise they won’t be able to perform a job.

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ext-device.xerox.enable-preauth	Specify whether PaperCut should enable or disable the Accounting Workflow preauthorization on the device for the different types of jobs. This is required for Zero Stop to work. Values: Y, N. Default: Y. If set to N, then it will change the preauthorization from “Pre-authorization and Capture Usage” to “Capture Usage”. This can be done so that the Job Assembly feature is enabled on Xerox.
ext-device.xerox.configure-preauth-and-prompts	Specify whether PaperCut should configure the Accounting Workflow and Prompts on the device for full PaperCut functionality. Values: Y, N. Default: Y. If set to N – it is your responsibility to configure the MFP Accounting Workflow and User Accounting Prompts to suit your needs. Note that normal PaperCut job control may not work as expected. In particular, Zero Stop may not work and Account Selection will no longer be available.
ext.device.xerox.swipe-to-logout	Specify whether swiping a card when a user is logged in will log them out or be ignored. Values: Y, N. Default: Y. If set to N, then when a user is logged in and they swipe their card, they will no longer be logged out and the swipe will be ignored.

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6.2 Setting an explicit PaperCut Server Network Address

The copier connects to the PaperCut server to validate user credentials, display print jobs for release, etc. The device makes inbound network connections to the PaperCut server using the network address of the PaperCut server. By default PaperCut will use the server's IP address (if the server has multiple IPs (i.e. multi-homed) then PaperCut will select one of them), but on some networks this address may not be publicly accessible from other parts of the network.

If the PaperCut server has a "public" IP address or DNS name then this can be used instead, which allows the copiers to use the "public" network address instead of the IP address that PaperCut detects. To do this:

- Log into PaperCut
- Go to the "Options" tab.
- Select "Config Editor (advanced)", from the action links on the left.
- Find the "system.network-address" setting.
- Enter the public network address for the PaperCut server.
- Press the "Update" button next to the setting and confirm the setting is updated.

To have this change take effect immediately, restart the PaperCut Application Server service (i.e. on Windows use: Control Panel->Admin Tools->Services).

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7 How it works

The following section gives a brief overview of the internal workings of PaperCut's on-board solution for Xerox devices. It's provided as background information and may be useful for technical administrators in troubleshooting problems.

Typical function workflow:

1. A user logs into the MFP via the panel. The MFP is configured to contact PaperCut (via SOAP web services) to verify login information.
2. The user ID and password is validated and device access is granted as appropriate.
3. If "release jobs on login" is enabled, any waiting jobs are immediately queued for printing. (called secure print release or find-me printing)
4. If the user performs any device functions such as Copy, Fax or Scan, these are recorded against the user ID in the device's onboard logs.
5. If PaperCut is tracking a device function, then at the start of the job it will send a SOAP message to PaperCut asking authorization to print the job or not. PaperCut will look at the attributes of the job and decide if the charging account has enough money to pay for the job. If it does then the job will proceed, otherwise an error message will be displayed. This is how the Zero Stop functionality works.
6. At regular periods (e.g. every minute) PaperCut contacts the device looking for new log entries (logs are downloaded via HTTP using JBA network accounting).
7. Any new log entries are analyzed and recorded in PaperCut's usage database. Any cost associated with the usage is charged from the user's account (or their selected Shared Account).

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8 FAQ & Troubleshooting

PaperCut shows an error status for the device. What could cause this?

In the "Devices" list the Xerox device may appear with an error status (hover your mouse over the status to see the full status message). The status message will help understand the cause of the error. The most common cause of problems is due to a networking issue, to resolve:

- Verify that the device network address (or IP) is entered correctly in PaperCut
- Verify that networking and firewalls allow PaperCut to establish a connection to the device on TCP ports 80 and 443 and UDP port 161 for SNMP.
- Verify that the configured SNMP SET community name matches the advanced config key: "ext-device.xerox.snmpv2.set-community-name" (the default value is "private").
- Verify that networking and firewall settings allow the device to establish connections to the PaperCut server on ports 9191 and 9192.
- Verify that you have provided the correct administrator login credentials for the device in the PaperCut device configuration page.

Another common cause of errors is that "Network Accounting / JBA" has not been enabled/configured on the device. Ensure that the Network Accounting is enabled as described in section 2.4.6.

Another possible cause of problems is if the device firmware does not support the "Off-box validation" features required by PaperCut. This feature should be available for recent Xerox copiers supporting "Network Accounting", however sometimes a firmware upgrade is required.

How often does PaperCut poll for accounts?

Account validation is done in real-time using the Xerox authentication web services methods. Hence any changes made to Shared Accounts, user rights, or user passwords are available immediately.

How often does PaperCut poll for job activity?

After PaperCut detects a login it will check for the completion of the job(s) every 2 minutes. Hence on average the job will appear in, and be charged by, PaperCut on average no longer than a minute after the job completes and the user logs out of the copier.

During no activity, the copier status is checked every 5 minutes.

Can I use a hostname rather than an IP address in the URLs when configuring the release station settings?

Using a hostname relies on the MFD using your DNS and ensuring that your DNS is correctly configured. The quickest failsafe option is to use the server's IP. If you have advanced networking skills, you may wish to investigate using a hostname.

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The device displays an error when authenticating the user.

The most likely cause of problems is that the device cannot establish a connection to the PaperCut server. Make sure that your networking/firewalls allow network connections from the device to the PaperCut server on ports 9191 and 9192.

Also ensure that the device SSL/HTTPS options are enabled. Ensure that the option to "Verify the remote server certificate" is disabled.

If your PaperCut server has multiple IP addresses or you use NAT on your network, see section 6.2 on how to explicitly configure the PaperCut server's network address.

I see an error on the Xerox LCD screen?

This may indicate networking issue, a configuration issue, or maybe a software bug. Re-check your settings and restart the MFD (i.e. power off and power on the copier). If problems continue, contact PaperCut Support.

The PaperCut device status reports the following error:

Error: User authentication failed IPLockedOut: Excessive Failure Attempts

This error can occur if you have the incorrect username and password set up for the PaperCut device. Even if you then set the correct username and password you can be locked out for a while. To reset the lockout, you can go to the following page:

http://device-address/diagnostics/ipLockout.php

The "Build Job" and "Sample Job" buttons are greyed out. What is wrong?

The Job Assembly feature of the Xerox, unfortunately, is not compatible with Job Limits and therefore the Job Assembly buttons are disabled by default. If you need this functionality and don't need Zero Stop then see section 5.7.

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